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CLIMATE

OF THE



UNITED STATES

CONSIDERED WITH REFERENCE TO

Pneumonia and Consumption

By W. D. BIZZELL, M. D.,

OF MOBILE, ALABAMA.

REPRINTED FROM THE TRANSACTIONS OF STATE MEDICAL ASSOCIATION,
28th SESSION.

MOBILE.

PRINTED AT THE MOBILE DAILY REGISTER OFFICE.

1875.

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PREFACE.

This little brochure is not intended to be an exhaustive treatise on the Climatology of the United States, but as a contribution to the study of a most important subject. And as such I hope it may not prove altogether valueless.

MOBILE, ALABAMA, September, 1875.

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CLIMATE OF THE UNITED STATES,

CONSIDERED WITH

REFERENCE TO PNEUMONIA AND CONSUMPTION.

In the consideration of this subject, we will in the first place direct your attention to those particular sections of the country which are alleged to be peculiarly fitted for the development of these particular diseases of the respiratory organs, aggravate their presence, or augment their fatality; and in the second place, examine into the characteristics and merits of some of the alleged health resorts for those suffering from chronic pulmonary lesions.

PART I.

The vast area embraced within the limits of this Republic, extending as it does from the 97th to the 120 deg. of longitude, and from the 25th to the 49th parallel of latitude, traversed by mighty rivers, lofty chains of mountains, and elevated plateaus, presents great diversity of climate, exerting a varying influence, either for good or evil, in restraining or hastening the inception of particular maladies, or retarding or accelerating their fatal tendencies after inception.

In any general consideration of the prevalence of diseases and the rate of mortality of different sections, we find that the law of average to a considerable extent prevails. The disease producing the greatest ravages and heading the lists of mortality in one section, in another is reduced to a minimum, only,

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however, to be superseded by some other malady equally fatal; so that the death rate is about evenly balanced, except, probably, in a few favored localities. This compensatory distribution of disease prevails, as we shall see, to some extent in the distribution and prevalence of affections of the organs of respiration; not, however, so markedly or perfectly, but approximately.

We shall first discuss these principal diseases, pneumonia and consumption individually, with reference to their prevalence and fatality in this country. Enquiring in a special manner into the conditions of climate that prevail, such as is expressed by the conditions of temperature and moisture incidental to, as well as the elevation of, the locality. The first that claims our attention, and most forcibly, too, in view of its great mortality, is consumption, that dread disease which, coming so often, clad in the livery of deception, stalks into the homes of rich and poor, and oft, ere we are aware, has irrevocably claimed the victim as its own, most frequently choosing the loveliest and fairest, the truest and best of our race; a disease possessing interest, not only from the inexorableness of its fatal tendencies, but also from the actual mortality produced by its ravages, for, according to the statistics of the U. S. census for 1870, no less than 69,896 persons were cut off during that census year by this disease alone, or nearly thirty thousand more than from any other single cause. Yes, 69,896 in one year, or one death to seven from all other causes combined.

And the death rate seems rather on the increase, for in the vital statistics for 1860 the mortality of consumption is set down at 49,082, or one death to eight of all other causes combined; for in 1850 it is put down at 33,516, or ten deaths from other causes to one of consumption. The mortality for 1850, as compared with 1860 and 1870, was relatively greater, however, than the rate of one in ten would at first sight seem to place it, for we must remember that no less than 31,506 persons died during that census year from cholera, and 20,556 from dysentery, the two combined in the aggregate amounting to a little more than 52,000, while the deaths from both these causes put together and both census years of 1860-70 combined, amount to only about 20,000; so it is fair to conclude that there was not so great an increase in the mortality of phthisis from 1850 to

1860, as the vital statistics at first sight would seem to place it.

In the discussion of this section of our subject, the prevalence of consumption and its distribution among the several States of the Union, we will take the vital statistics of the United States census for 1870 as our guide.

Commencing, then, with the State possessing the greatest mortality, we find that State to be Maine, where the deaths from phthisis are 1 to every 3.9 deaths from all causes, or one death to every 315 of its population; more than one-fourth of the deaths from all causes.

Ranking next is New Hampshire, with a death rate of 1 in 4.5, or not quite one-fourth of the deaths from all causes; one death to 334 of her population. The District of Columbia stands next on the lists of mortality, with one death to 4.6 from all causes; one death to every 298 of its population.

The mortality from phthisis, in the States of Vermont, Rhode Island, Connecticut, Delaware, New York, New Jersey, Ohio, Pennsylvania, *in fact every State and territory of the Union north of the 38th parallel*, ranges from 1 in 3.9, in Maine, to 1 in 11 deaths in Kansas; and in no State north of this does the mortality fall so low as 1 in 12, save in the territory of Wyoming, where the statistics are too scant to be worth much, or give much indication of what the mortality may be when the territory shall have become more populous and the mortality from all causes greater.

The death rate even of Minnesota is 1 to 7.6 deaths from all causes, while that of California is still greater, or 1 in 7.2.

If we begin at the other extreme of the tables, we find the territory of Arizona almost possessing an immunity from this disease, there being only one death in 250 from all causes; and to show that it is not the small number of deaths recorded that makes this proportion in the statistics, we have only to refer to the heading of pneumonia to find forty-two deaths, or one in six, from this cause.

The next is New Mexico, where the death rate is only 1 to 26.2 deaths from all causes; Nevada, death rate 1 in 20.5; Florida, 1 in 17.3; Texas, east of the Colorado, 1 in 16.9; and Texas, west of the Colorado, 1 in 15. Next come most of what are known as the Southern States, two of which—Florida and

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by nearly the whole width of the State, and borders immediately upon the Atlantic, with a mean temperature for the year, according to Prof. Henry, of 40 degrees in the interior, and 44 degrees near the coast; and, according to Blodgett, a mean spring temperature of 46.3 degrees, and winter 21.6 degrees; with an average rain-fall in the region farthest from the coast of 40 inches, and 48 along the latter; with an elevation above the level of the sea, along the coast for fifty or sixty miles inland, less than 400 feet, or at least it attains that elevation at about this distance from the shore; thence gradually rising to the mountainous region in the western portion of the State, where it attains an altitude of about 2,000 feet.

In the remainder of those States bordering on the Atlantic, above the 40th parallel, whose great mortality from phthisis we have already shown, we find a somewhat lower temperature, 44 degrees to 48 degrees, as we come further south, being the mean for the year; the mean for the winter ranging from 23 degrees in Massachusetts, to 31 degrees in the neighborhood of New York city; the snow lying on the ground throughout all this region from the middle of November, and often earlier in Maine, to the middle of March or first of April. The States bordering along the Atlantic, in addition to the low temperature which we have seen they possess; have an atmosphere more or less charged with moisture. For in the winter season the air blowing from off the neighboring waters, warmed as they are by the ascending current of the Gulf Stream striking the shore, gives the coast region a mean temperature for the year about four degrees lower than the more inland regions, as far south as the 40 parallel. This warm sea air coming in contact with the colder land air, and the cold cliffs and other objects constituting the surface of the earth, it becomes partially condensed, and we have fog, mists and snow storms. It is to this same cause that are due the notorious fogs off the coast of New Foundland. While the snow is melting and the frost thawing with the approach of spring, these are factors to produce this condition of cold, combined with dampness, conceded by all authorities to be the chief climatic factors in the development of phthisis.

In the middle northern States, as Pennsylvania, Michigan, Ohio, Indiana, Wisconsin, Iowa, and others, where, as we have

seen, the mortality ranges from one death in five from all causes to a little more than one in seven, there are various physical and climatological conditions. In the State of Michigan, where the mortality is one in six, the rain-fall is less in its more northern portion than any of the immediately surrounding States of the Union, though the neighboring region, the dominion of Canada along the northern border of the lakes Superior and Michigan, has about the same—28 inches; while in the southern portion of the State the rain-fall is 32, 36, 40 inches, an annual rain-fall of about the same as the surrounding States. Mean annual temperature for northern part of the State is 40 degrees, while the southern, in common with the upper portion of the States of Illinois, Indiana, Ohio, and Pennsylvania, is about 52 degrees. The territory embraced in the latter States above enumerated is from 400 to 1,000 feet above the sea level. The climate of Minnesota and the elevated plateaus and parks constituting the eastern slope of the Rocky Mountains, we will discuss when we come to consider the health resorts in the United States for consumptives. The States on the Pacific coast, above the 38th parallel, possess wide variations and marked contrasts in their rain distribution. The districts bordering immediately upon the sea have a very large amount of rain, commencing at San Francisco, where the mean annual rain-fall is 20 inches, the amount of precipitation increases as we go farther northward, till, at Astoria, it is 72 inches; and two degrees further north the enormous amount of 80, nearly 20 inches more than any other section of the United States. The rain-fall, however, rapidly diminishes, even at a short distance inland, till we come to the Cascade mountains, east of which the mean rain-fall is only 12 to 20 inches for the year.* The winter rain-fall at Astoria, according to Blodgett, is about 23.5. In the rain precipitation along the coast region of Oregon and Washington, more especially that for the winter months, there is almost a complete analogy to the western aspect of the British Islands and Normandy.† And in the exhaustion of the major part of the moisture borne inland by the south-western winds from off the warm waters of the Pacific, its condensation

*Prof. Henry.

†Blodgett's Climatology.

and precipitation along the sea coast and western slope of the Cascade mountains, and the very limited amount that passes over and is precipitated to the east of this range, present the same characteristics only in a more exaggerated degree as are observed on the west coast of Ireland and along Magillicuddy's Reeks, mountains of Kerry, the condensing power of which Prof. Tyndall so graphically describes.*

The mean temperature for the year along the region of the sea shore is 52 degrees, while the region further inland is from 40 degrees to 44 degrees; the mean winter temperature is only about ten degrees lower than the summer. We have, then, while not an absolutely cold climate, still a cool one for the major part of the year. It is also exceedingly damp and rainy throughout the region where the great mass of the population reside—namely, along the sea coast; and we would expect a large mortality from phthisis, and the mortality does rank high—namely, 1 in 5.6 deaths from all causes in Oregon, and 6.4 in Washington.

The death rate of California is 1 in 7.2 deaths from all causes, a mortality largely due to the deaths occurring in the northern two-thirds of the State; the lower third of the State, as we shall see further on, possessing such characteristics as to entitle it to be regarded as one of the health retreats in certain cases for persons suffering from phthisis. At San Francisco the temperature is rather low, cool and equable, 52 degrees being the mean for the year, rarely varying from this more than a few degrees either winter or summer. On the other hand, in some of the interior valleys the temperature for many days in the summer runs very high, often indicating 110 degrees in the San Juan valley. The effect of the high temperature of the interior is to cause the colder air of the Pacific to rush with great violence through such openings along the precipitous coast as the Golden Gate at San Francisco affords. Just in proportion as the summer advances, the force of the wind augments, making the summer months in San Francisco the most disagreeable of the whole year; for, though the wind is charged with more or less moisture, it rarely rains, and to the other evils is added the clouds of dust raised in the streets by its passage.† The climate

*Forms of Water.

†Blodgett.

of Southern California we will discuss when we come to the section of our subject relative to Health Resorts; also, the territories of Arizona, New Mexico, and those high and dry regions along the western slope of the Rocky Mountains.

We see, from all that has been said, that there is but one factor that is constant, and that we can fairly believe to be the determining cause that places the preponderance of the mortality from phthisis in the more northerly section of the Union, and that is the relative lowness, frigidity of the temperature. The greatest mortality we have seen to be continually placed to the northward of the 38th parallel of latitude. It can not depend upon the humidity as expressed by the rain-fall, for in this particular the southern States of the Union, as we will see when we come to study the climatology of pneumonia, greatly surpass; and besides, we see that differences in the humidity among the more northern sections, as between Maine and Minnesota, has always been to give a less mortality to the dryer. And we think it may also be asserted, without fear of contradiction, that the only difference between one section and another of the Union, above the 38th parallel, as a habitat for this disease, is its relative dryness, no degree of elevation above the sea level being of any advantage, unless, it is at the same time dry.

We will now proceed to the consideration of the climatology of that portion of the Union where pneumonia takes the front rank on the rolls of mortality. The State having the greatest mortality from this cause is Arkansas, where the death rate is 5.1, nearly one-fifth of the deaths from all causes. The State of Arkansas has nothing special in its latitude to account for its distinguishing position, if we may so call it, in connection with this disease, being nearly equally bisected by the 35th parallel of latitude. Nor is the rain-fall greater than of most of the other southern States, or indeed not nearly so great—44 inches in the more northern, and 48 in the southern portion of the State, being the mean for the year; nor in its relative position above the sea level, ranking in this respect about as Alabama or Mississippi, being less than 400 feet along the course of the several valleys produced by the many rivers that traverse it, and gradually rising higher, till in the more northern and western portion of the State, it attains an elevation of from 800 to 1,000 feet.

One thing, however, preëminently distinguishing the physical aspect of the State, is the number of rivers traversing its borders; the mighty Mississippi forming the eastern boundary, and traversing it, the White, Arkansas, Sabine, Wachita, and Red; into these larger we have smaller streams emptying, besides bayous and lakes innumerable; the whole forming for the State a vast region of rich and alluvial soil, a very paradise for cotton, negroes, and *malaria*. And as we have ventured the opinion, based as we believe on facts, that the larger percentage of deaths from phthisis in the north is caused mainly by its higher latitude, so we believe that the preponderance of pneumonia in the south is due to the greatly preponderating amount of malaria and malarial influences that prevail in that section. The mortality from pneumonia ranks high in Alabama, according to the census of 1870, one to 7.2 deaths from all causes. And we know that malaria is recognized as the special bane of this fair and fruitful State, by all thoughtful medical men within her borders. We do not claim that every case of congested and solidified lung is due to the influence of malaria, but we do believe that malaria has much to do with the production of a large number of the fatal cases of pneumonia that occur in this southern country; and while this element does not manifest itself in cases occurring in the cities, and falling in the hands of the metropolitan practitioner, the physicians practicing in the malarious regions of Alabama, will bear me out in the assertion, that in precisely those localities where the malarious poisoning is most intense, and where in summer the varied forms of intermittent and remittent were most prevalent, on the approach of winter furnish their most serious and fatal cases of pneumonia. In the very houses and among the very people where in summer he was called oftenest, and where several members of the family would be prostrated at one and the same time with various types of intermittent and remittent, as winter approaches he will be called to treat the same people—and it may be several members of a family, either at one and the same time, or in succession,—for pneumonia. And this will occur so often that he can only believe that malaria and pneumonia stand in the relation of cause and effect. In Mississippi, where, as we have seen, the death rate from pneumonia was 1 to 7.8 deaths from all causes,

there are abundant evidences of the working of malaria; bordered on one side by the rich valley of the Mississippi, and traversed by numerous streams of greater or less size, some of which, as the Yazoo, have considerable valleys of their own, the higher regions consisting largely of prairies, and such other characteristics of soil as develop a large amount of malarial poison. The mean temperature in the southern part of Alabama and Mississippi varies from 68 degrees, the mean at the city of Mobile, to 64 degrees, the mean temperature for the year at Montgomery, Alabama, and Jackson, Mississippi; the more northern portion of both States registers a mean of from 60 degrees to 58 degrees, and in the mountains of North Alabama as low as 56 degrees for the year.

The rain-fall of the southern portion of these same States is from 64 inches at Mobile, to 60 inches in the western and central portion of Alabama and eastern Mississippi; while along the borders of the great Mississippi river the rain-fall is only from 48 to 56 inches for the year.

What we have said in relation to the climatic influences that prevail in Alabama, Mississippi and Arkansas, in their relations to pneumonia, we believe to apply to every southern State; the amount of mortality from pneumonia being in some sort an index of the extent to which malaria is evolved within their borders; and that the topography of a State and its malaria producing qualities, is of more influence on the mortality of pneumonia, than the characteristics of climate *per se*. We know that this question concerning the part that malaria plays in the development of pneumonia is not a new one nor one on which the profession is united; the learned and laborious La Roche having written a large volume to prove that pneumonia and malarial fevers have nothing in common as to their origin. He has been followed by Flint, and others, who hold to the same opinion. It must be remembered, however, these writers have either had a very limited experience, or no experience at all in the treatment of those affections attributable to malaria. While we do not assert that pneumonia, as seen in this southern country, stands in the same direct relation to malaria that intermittents and remittents do, still we do believe that to cases occurring under such circumstances, where the patient has for

a long time been under the influence of the baneful miasm, it imparts an element of fatality and gives to the case a gravity that it otherwise would not possess. For, besides the anæmia and damaged vital power that malaria entails upon its victim, it, in common with some other constitutional poisons, though it may lie dormant for an indefinite time, just so soon as the patient is menaced by some other malady it demonstrates its presence; in pneumonia, by prolonging the cold stage, and by its well known propensity to produce disturbance in the vascular system, and consequent visceral congestions—adds to the already congested lung an increased supply of blood, thereby augmenting effusion and increasing the consolidation.

It may be argued that the great variableness of temperature which characterizes the southern winters, and the rapidity of the changes from one extreme to the other, is sufficient to account for the larger number of deaths from pneumonia in that section. This we do not believe; for, while it may be the exciting cause of a large number of cases, we do not believe that it is to this alone that is to be attributed the greater mortality from pneumonia in the South; and this is well exemplified in the mortuary statistics of the State of Texas. For, while the death rate from pneumonia in Texas, east of the Colorado river, was 6.7 deaths from all causes, in Texas west of the Colorado, it was only one death to 15.2 from all causes. In eastern Texas it is a well known fact that malaria and malarious diseases are very prevalent; while in the dry western portion of the State they are not nearly so frequent. And while the whole of the State is subject to those sudden changes of temperature—Northerners—to which nearly all the southern States are liable, and to which we have already alluded, the western half of the State is most markedly so; the temperature passing frequently, in an incredibly short space of time, from one extreme to the other, the mercury frequently falling thirty or forty degrees in as many minutes; and yet we see the mortality from pneumonia was not half so great in this portion of the State as in the more eastern, where malaria was more rife.

The fatality that the malarious element impresses upon pneumonia in the South, has long been recognized by the best of our southern physicians and teachers. Dr. Leroy Anderson, in a

paper published in the transactions of the State Medical Association of Alabama for 1854, on "The Diseases of Sumter County," says of pneumonia in South Alabama, (more properly Central Alabama):

"The pneumonia of South Alabama is probably less severe than the same disease in more northern latitudes; and the *intermittent and remittent fevers* accompanying it are *more dangerous* than the pulmonary inflammation.

"The treatment should be directed chiefly against the malarious element of the disease. Quinine should be freely given for its anti-periodic effect, and mercury for its influence on the secretions, particularly those of the liver."

The same author, in an essay on "The Summer and Autumnal Fevers of South Alabama," says of pneumonia: "In our pneumonias, the remittent fever accompanying them is commonly the *real disease* to be combatted. This relieved, the pneumonic symptoms rapidly give way. Quinine is by far the most important remedy in their treatment. Moderate mercurials, antimonials, expectorants, &c., are very useful, but effect little in serious cases without quinine."

Dr. Leroy Anderson, cut off too early from his chosen field of labor and research, possessed in an eminent degree the confidence of his professional *confreres*; and his knowledge of the types of malarious diseases has perhaps never been equaled by any medical man in the State; certainly no man has ever given a more perfect portraiture of its protean manifestations.

Every physician who has practiced much in the malarious regions of Alabama will recognize Dr. Anderson's portrayal as genuine. Our much loved *confrere*, my former teacher, Dr. E. P. Gaines, in a most interesting paper entitled, Malarial Pneumonia, July number New Orleans Medical and Surgical Journal, 1867; has this to say of the Etiology of this disease. "I believe malaria to be the producing cause, and cold and moisture the exciting cause. As in summer we call the fever produced by the same cause "bilious remittent," so in winter we might with as much propriety, call the fever produced by the same cause, "*remittent pneumonic fever or winter fever.*" Also in his lectures before the class in the Medical College of Alabama, as Professor of Clinical Medicine, Dr. Gaines strongly main-

tains the same ground, and among southern authorities is accustomed to quote enthusiastically from the valuable essay of Dr. Anderson already mentioned—also from papers by Drs. Otis, Frederick, Manson,* P. B. Minor,† and others.

In conclusion, while we do not wish to enter the argumentative arena, and endeavor to disprove the propositions advanced by Dr. La Roche and other eminent authorities, who maintain that pneumonia is never produced by malaria—though we cannot see why it should not be as competent to produce a congestion, followed by inflammation of the lungs, as of the stomach, liver, or intestinal tract, complications constantly occurring in the course of our ordinary remittents. But, however this question as to the causes producing pneumonia may be decided, we are firmly of the opinion, as before stated, that it is *malaria and malarious influence that give to pneumonia its fatal tendencies in the South*. And here we will not be against even Dr. La Roche, who concedes that a malarial element may complicate a pneumonia; we only add—to a sufficient extent, in many cases, to turn the tide against the patent and produce a fatal result.

PART II.

Health Resorts for Consumptives in the United States.

In the consideration and selection of localities suitable for the victims of chronic pulmonary complaints, of which consumption is the chief; while it is a general truism, that different cases require different climatic influences, as is so often said by way of preface in the treatment of this subject; yet there are certain elements that are essential to any climate claiming consideration in this connection. Probably the best climate that could be desired would be one that was comparatively warm and equable, and the same time rather dry; for while a warm, moist climate would no doubt be better than a cold, damp one—just as we could see how Mobile might be a far better place for consumptives than Portland, Maine, or even Boston or New York city; yet on account of the great number of damp days and the large rain-fall at this place, we would not expect Mobile to escape a rather large mortality from this disease, and such we

*New Orleans Med. Jour. and Hospital Gazette, Sept. 1857

†Transactions Ala. State Medical Association, 1871.

find to be the case; for if we examine the mortality tables prepared by Dr. G. A. Moses, formerly of this city, and appended to his report "On the Diseases of Mobile County," printed in the volume of the transactions of the State Medical Association for 1872, we find the number of deaths from consumption in Mobile, from the 1st of January to the 31st of December, 1871, was 227, one death to 5.2 from all causes; while, as we have seen, the death-rate throughout the State, by the census of 1870, was one death from consumption to 14.2 from all causes. In 1873 the mortality from consumption in Mobile was not so great as that of 1871, for according to the weekly printed reports of the Registrar of Vital Statistics from January 1st, 1873, to January 1st, 1874, there were 135 deaths from consumption, to 1169 from all causes, or one to 8.6.

Along the Gulf Coast of Alabama, we have a greater prevalence of cold land-breezes, alluded to by Blodgett, and to which he attributes the failure of certain tropical fruits, but we have nothing in the way of storms flowing from the sea to the land, that compare with the disagreeable blows experienced along the South Atlantic or Florida coast, they being a continuation of those storms centering along the western border of the Gulf Stream, and which have made Cape Hatteras notorious. But it is not the winter season that is most trying even to the consumptive originating in this city, for the rain-fall along the Gulf coast from Pensacola to New Orleans is greater than any other part of the Union except the North Pacific coast, and a large proportion of this is crowded into the summer months. In the published report of the Chief Signal Officer at Washington for the year 1873, we find that for the preceding twelve months ending September 30, 1873, the rain-fall at Mobile was distributed as follows: For the spring months, 16.21 inches, summer 28.97, autumn 16.49, winter 11.01. The summer rain-fall is much greater than that of the other seasons, and the relatively large rain-fall for the spring and autumn was principally due to the amount precipitated in May—11.47 inches—the last of the spring months, and September—8.87—the first of the autumn months. With the first of May along the Gulf coast commences the warm weather and the larger rain precipitation, and closes about the first of October. And this is the most trying period

to the consumptive, especially the more advanced cases, where the lung is breaking down and the expectoration is abundant, or where cavities have already been excavated in the lung tissue. The heat causing a more or less rarified condition of the atmosphere, lessens the amount of oxygen inhaled at each inspiration, and combined with moisture has a direct tendency to cause a general relaxation of tissue and augment the secretion from any pyogenic membrane, such as the lining of a vomica affords. Such we would expect to be the effect from a *priori* reasoning, and observation confirms it as a verity. There are numbers of individuals, residents of this city, who by proper care of their hygienic condition can pass the winter in Mobile with comparative comfort, with scarce any retrograde in their general health, though suffering from phthisis often of many years duration. With the advent of warm weather they immediately feel the grasp of their old enemy tightening on them. They begin to lose appetite, the hectic flush deepens, announcing the febrile annoyance by day, and the profuse sweats deplete by night, and in spite of judicious medication, the patient continues steadily to decline.* With the month of August the exhaustion, prostration and attendant mortality of the heated term seem to reach their acme, the mortality for the month of August from phthisis being greater than for any other month in the year, both in the tables prepared by Dr. Moses and those by the Registrar of Vital Statistics. It is also a notable fact that the rain-fall was greater for this month than any other of the twelve, as is shown by the meteorological record for both those years. Blodgett, in his Climatology of the United States, calls attention to this large rain-fall common to the Gulf coast for the summer months, and in his hyetal chart of the mean precipitation for the three summer months, it is set down at 20 inches. The mean temperature for the month of August, 1873, whose relative mortality we have mentioned, was 80.20, just two degrees lower than the preceding month of July. The long, warm, moist summer season, then, is the most trying to the cases of consumption originating in this city; and in a similar

*Dr. Southgate, speaking of those cases originating in Florida, says: "In such, the rapid melting down of the lung in the warm months, it has been my painful duty to witness in more than a single instance."

manner, we have no doubt, it would impress the invalid coming from the regions farther north who might sojourn here during the same period. But in this disease, as in every other, we must bear in mind the differences which the temperament and constitutional peculiarities of the individual may impress upon the disease. As we stated, there were persons in Mobile who are unable to withstand the heat of summer in this latitude, but who derive great benefit from a short stay in the more northern latitudes, as Minnesota, for three months, and when the stay is continuous, followed by permanent benefit and apparent cure, the improvement in their physical condition for the warm weather being such as to enable them with impunity to pass with safety through the long, rigorous winters of these latitudes. Just in the same ratio we see persons coming from the north with symptoms of phthisis more or less marked, who are so much benefitted by the mild and, in the main, delightful climate our winters afford, that they are enabled without detriment to spend their summers here also, and by prolonged residence the inroads of the disease are permanently checked.

May there not be more truth than we imagine in the assertion of the late honored and lamented Dr. J. C. Nott, who used to say that a consumption originating in the South should seek a northern latitude, and *vice versa*. That strong and rising man of New York city, Prof. Alfred Loomis,* in relation to the treatment of bronchial catarrh in those predisposed to consumption, says: "If the individual lives among the mountains, let him go to the sea-side; if at the sea-side, let him go among the mountains," hinting at the same idea advanced by Dr. Nott.

The city of Mobile, in common with all places near the sea-shore, is fanned by alternate breeze from the Gulf and the land, as a consequence possesses that combination of land and sea air which, while very beneficial in certain cases, is not regarded with favor by some of the most experienced in these matters. While, then, we do not regard the city of Mobile as a suitable place for the sojourn of the consumptive during the period of the intensest heat of summer—say for the months of June, July, August, and a part of September—there can be no doubt that for the comparatively rainless autumn months, the

*Diseases of the Respiratory Organs, Heart and Kidneys, 1875.

mild, equable, and, in the main, delightful winter and charming spring, it possesses such characteristics as entitle it to the careful attention of those wishing to flee from the harsh winters of the more northern latitudes. Social and gastronomical considerations are of the greatest importance in the selection of localities for the hygienic treatment of phthisis. Excellence in both these characteristics has long since been conceded to Mobile, and is a source of pride to all her citizens. The high tone of society, the hospitality and the frankness with which strangers are received are characteristics of her people; with a most excellent market, ranking second to none in the South, and in the matter of fish and oysters, the finest in the world; since the renovation of the Battle House, a hotel with all the modern improvements, an elevator, polite servants, an excellent table, and everything necessary to the comfort of the invalid.

Mobile is situated on the western bank of the Mobile river, and has nowhere in the corporate limits an elevation more than forty feet above the Gulf of Mexico. The elevation at the wharves along the river front above the Gulf is about 15 feet; from this point the altitude increases as we proceed westward till, at the distance of one mile and three-quarters, it attains an altitude of about forty feet. The city is thus well drained in the main business and residential portion.

To those who find, after trial, the air too heavy, and who wish a dryer and lighter atmosphere than the city affords, the pine hill regions to the north and west of Mobile are highly to be commended. Probably one of the best situated of these highlands is Citronelle, a village on the Mobile and Ohio Railroad, thirty miles north of Mobile; it certainly is the highest region anywhere in the neighborhood of Mobile, being more than three hundred feet (322½) above the level of the Gulf.* The country here is rolling and hilly, interspersed with ravines. The highlands are covered with a growth of the Southern long-leaved pine (*pinus palustris*). The ravines, along which in the majority of cases, a stream of sparkling water winds its way, are filled with a thick growth of magnolia, bay, &c. That this is a locality suitable in an eminent degree for many cases of consumption, is a fact to my mind undoubted. Many advanced

*A. L. Rives, Chief Engineer M. & O. R. R.

cases of consumption/originating in this city, those long past the stage of curability, and who experience great depression in the atmosphere of the city even during the winter season, find the higher altitude of Citronelle and the pure air of the pine forests very soothing and agreeable to their sore and irritable lungs. The accommodations for the invaid are limited, and not of the best order. The best accommodations are those afforded by private families in the neighborhood, hence the number of good places and the number of sick that can be accommodated are comparatively few. As a location for the establishment of a sanitarium on a large scale for the accommodation and treatment of the victims of consumption, we think it possesses claims that should entitle it to the earnest consideration of those most interested, namely, the physicians treating such patients and the patients themselves. We think, also, in a utilitarian and business point of view, it would prove a great success and be a paying investment, for in addition to the favorable characteristics that we have already seen it possesses, it is directly on the line of a great railroad thoroughfare, in constant and speedy communication with the outside world, only about one hour's run from Mobile, with which place, beside the communication afforded by the through trains, it is connected by a special daily train. Marketing could therefore be done in Mobile, and the splendid fish and oyster market which the latter possesses could be as thoroughly utilized as in the city itself.

There are other places in the vicinity of Mobile that claim consideration in this connection, but none, perhaps, that presents so many advantages as Citronelle. We might mention Spring Hill, a delightfully situated village on the top of a hill or elevated plateau, one hundred and fifty feet above the region at its base, and one hundred and seventy above the city of Mobile. The village is well supplied with well water of good quality, and commands a fine view of the city and bay of Mobile.

Mt. Vernon is another beautifully situated village in this pine region, on the line of the Alabama and Grand Trunk Railroad, twenty-nine miles north of Mobile, and is the seat of the United States Arsenal.

As a health resort in the Southern latitudes for the consump-

tive, Florida early attracted attention. As early as 1820-25, after the dreaded Seminole had been driven from his home in the everglades and forced to leave his hunting grounds forever, and the tide of white emigration began to flow in this direction, attention was divided between the warm semi-tropical climate of Florida and the islands of the West Indies. From 1835 to 1845 or '50, there was hardly any place within the limits of the United States recommended to phthisical patients but that of Florida; and at this time the Eastern or Gulf shore of the peninsula was the one most highly commended; Pensacola being considered a better locality for the consumptive than St. Augustine. From 1840 to 1850, a very large number of phthisical persons, in every stage of the disease, seeking that restoration to health which no climate could give to all, came to this region. Many of the more promising cases having rapidly gained health and strength here, coming as they did from the frozen regions of the North, induced others, and still more desperate cases, to avail themselves of its health-giving qualities, only, however, to be disappointed; the very large number of improper cases sent there only to find a grave, together with the very inadequate accommodations, had, even before the commencement of the late war, caused its popularity to wane, and some physicians to assert that the climate of Florida was suitable only for a minority of those cases occurring even at the North. Of course, during the war, all communication being cut off by the hostile attitude of the two sections of the Union, few, if any, came from the North for the benefit of their health. Not long after the war, however, invalids and tourists again sought health and pleasure in this delightful semi-tropical climate. Among the latter class of persons were numbers of the ubiquitous newspaper correspondents, a class of persons whom the striking incidents of the great civil strife had called into existence. These came to Florida in numbers, and by their letters filled all the newspapers at the North with their gorgeous descriptions of this most wonderful southern country. Among those who by their writings served to direct attention to the climatic advantages of Florida, its scenery, &c., there was one of more than ordinary ability as a writer, and to whom probably Florida owes more to-day, than to any other person, the

very considerable immigration of northern people as permanent settlers, and the large number of persons who yearly resort thither for health or pleasure. I allude to Mrs. H. B. Stowe. Certain it is, that there are more invalids spending their winters in Florida, than at any other period of her history. Thousands flock there every winter, and numbers make investments and become permanent citizens.

Undoubtedly Florida is a most desirable and promising resort, especially for cases developed at the North, for the winter season. Medical men do not agree, however, as to what portion of the State possesses the most advantages, and should be more especially commended to the invalid. None, however, recommend the Gulf coast of the peninsula, which is in marked contrast to the former opinion of medical men on this subject. However, Wm. W. Moreland, M. D., in a paper read before the Massachusetts Medical Society, entitled "Health Resorts at the South," 1874, recommends, on the authority of Dr. George Hayward, the region on the Perdido river, about twenty miles from Pensacola, Florida, and which is the dividing line from Alabama. It is described as a dry, marly, pine region, eminently suited for the establishment of one of those Sanitaria, which he hoped to see established in the South at some time not far distant. In our opinion, the place above mentioned possesses no advantages in point of climate that the village of Citronelle does not possess; while the latter, situated on the line of a great railroad thoroughfare, is easy of access to the whole country. Besides, there are many days in succession when the weather is magnificent in the city of Mobile, the parties, wearied with the monotonies of the life at the Sanitarium, could come down to the city and spend some days with pleasure and benefit.

As we have stated previously, as a location for a Sanitarium, Citronelle is unrivalled.

But to return: The portion of Florida which now receives the largest number of invalids is the Atlantic sea-board and the St. John's river region. The towns and cities most frequented by invalids on the St. John's river, are Jacksonville, Hybernia, Magnolia, and Green Cove Springs, with Palatka and Enterprise further inland and to the south. St. Augustine, Fernan-

dina, and the other places of resort on the Atlantic coast, do not seem to be as suitable resorts for the consumptive as those along the St. John's river, as is proven both by the experience of invalids, and the observation of physicians who have studied this question and recorded their experience. Dr. Moreland, in the paper already alluded to, says of St. Augustine: "Many go to St. Augustine, but, as our experience compels us to say, with far less advantage—sometimes with positive harm. The immediate proximity of the sea is the difficulty. However delightful to feel the crisp, fresh breeze coming in from the sparkling, sun-lit ocean, over which one gazes with such delight from the shores, down to whose margin the quiet old town has crept, and lazily dreams away its tropical existence, there is danger. We have observed marked aggravation of symptoms in bronchitic patients who had come from Jacksonville, or further, to St. Augustine. A few days only sufficed to show the necessity for an immediate return—a favorable result justifying the action."

C. W. Horsey, M. D., in his "Remarks on the Climate of Florida,"* in regard to this same region, says: "Fernandina and St. Augustine present the features of climate met with on the sea-board of semi-tropical climates elsewhere. The atmospheric conditions of both are identical, being invariably moist, especially at night and morning, and under the continued influence of the sea breeze and wind currents from the ocean. During the winter months all points on the coast are exposed to the frequently prevalent northerly storms, which last at times for days, and whose fierce and penetrating blasts are difficult to be borne, even by the hardy."

The question, then, naturally arises—what portion of Florida presents such conditions of climate as will prove most beneficial to the largest number of invalids who yearly resort thither?

Undoubtedly the interior towns along the St. John's river, and which we have already mentioned, receive the larger portion of the consumptives who visit the State.

There are several reasons to account for this. First, they are more accessible than any other part of the State, all of them being connected, either by railroad or water, with the outside

*American Journal Med. Sci., April, 1874.

world; in the second place, the scenery along this river is unsurpassed in beauty by any other portion of this State, so rich in the gorgeousness of its semi-tropical vegetation. As a consequence, to the mere tourist, to whom the question of climate is not a vital one, this part of the State is undoubtedly the most attractive; and as hotels and other accommodations naturally spring up where they are most in demand, and where the largest number of persons do congregate, we find the best accommodations along the St. John's river. As dietetics is a most important feature in the treatment of consumption, properly prepared and wholesome food is an important element in the consideration of this question. From all accounts, however, the *cuisine* of most of the hotels along the St. John's is not altogether satisfactory, though improving much of late.

The question then remains to be decided—is there any portion of Florida that possesses climatic advantages for the consumptive invalid over this St. John's river region, which, as we have seen, is in most cases to be preferred to the Atlantic coast of Florida?

Dr. C. W. Horsey, in the paper to which we have already alluded, thinks the high and dry pine regions constituting the centre or water-shed of the peninsular is greatly to be preferred to any other portion of the State. In regard to this subject, he says: "The section of country to which I especially desire to invite and direct attention, is the *central pine land* regions, of which the towns of Gainesville, Micanopy, Osceola, and Brooksville, are the centres. Situated as these points and their surroundings are, upon the highest and driest section of the State, sufficiently removed from either coast to be beyond the effects of the dampness, they appear to me to possess peculiar fitness to merit all the requirements of climate that are to be obtained." "Those who are unable to live in high altitudes, consequently, will find great benefit here; for the country being level, dry, and not too much elevated, the circulatory apparatus is not subjected to the great disturbances induced by rarefied air. In cases of chronic broncho-pneumonia, attended with excessive expectoration, the immediate benefit derived is probably more marked than in any other."

The highest elevation in this central plateau is about 300 feet;

from 150 to 200 feet, however, is the usual height. This high pine region of Florida, embraced in the counties of Alachua, Marion, Sumter, Orange, and a part of Hernando, is quite a large scope of country. Though we have never had an opportunity of testing the effect of a stay in this region upon consumptives, we are disposed to agree with Dr. Horsey, that here is located the best region for the consumptive that Florida contains, if we take into consideration merely the climate *per se*. The means of transportation to and from this region is very imperfect, however, and the accommodations of course are not such as are met with at Jacksonville and other places along the S. John's river; but if the patients were fond of hunting and outdoor sports, and able to indulge to any extent in such, and form a party, and either camp in the forest or get some farm house, and have a cook of their own, it would seem to me a most excellent arrangement; plenty of butter, eggs, milk and poultry could be had from the neighboring farms, besides the game from the forests. Of course, both physician and patient should weigh the matter well before the latter becomes one of such a party as that we have mentioned. Most undoubtedly it would, in properly selected cases, be productive of the best results.

We believe that this part of Florida under discussion possesses a better climate than either the pine lands of Georgia or South Carolina, possessing a climate milder, and where the winter variations of temperature are not nearly so marked. It even possesses some advantages over the pine lands of South Alabama, as a residence for the entire year, there being in the twelve months nearly eighteen inches more rain at Citronelle, Alabama, than at Gainesville, Florida. The mean *winter* precipitation, however, at the two places is about the same.

Aiken, South Carolina, situated among the hills and dry pine barrens of Barnwell District, 120 miles from the sea, and 600 feet above the sea level, possesses a climate very much like that attributed to the South of France, according to Dr. Simmons* —“characterised by dryness, moderate range of temperature, comparatively free from extremes of variation, a mean temperature of 61.69,” Dr. Moreland says of the climate of Aiken. Our

* Climate in its Relation to Consumption, Amer. Jour., January, 1872.

own impression of the climate of Aiken and its vicinity is, that many consumptive cases, where cough is accompanied by profuse expectoration, would be benefitted by the dry, somewhat bracing air. "The contrary would be likely to prove true of cases of irritative bronchitis, with dry cough, or with but little cough, and only slight secretion from the bronchial mucous membrane." Continuing, he says: "Rather injurious effects of the climate in these cases came under our observation—the throat becomes dryer and more irritable, and the transpiration from the skin nearly suppressed; whereas, in Florida perspiration was very free, and the softer, more humid atmosphere soothed the irritated lining of the air passages."

This section of country is no doubt eminently suited for the establishment of a Sanitarium. Dr. W. H. Geddings, son of Prof. Ely Geddings of Charleston, did have such an establishment here—"The Pines,"—and we suppose it is still in existence. Dr. Moreland, in the paper we have been quoting, recommends it as well conducted.

Western Texas has for a long time attracted attention as a resort for consumptives. Some of the best physicians have been accustomed to send such of their patients as were suffering with bronchial catarrh and profuse expectoration to the dry plains of western Texas, and when the patient had a taste for field sports, and sufficient vigor to hunt and camp upon the plains, continually moving from one place to another, it has in many cases been attended with marked benefit.

San Antonio has been considered a good place of resort for the consumptive. The mean temperature of San Antonio is 68 degrees, according to Prof. Henry, of the Smithsonian Institute, and 70 degrees, according to Blodgett; is about 1,500 feet above the sea-level, with a rain-fall, according to Prof. Henry, of 32 inches. According to the observations of Dr. F. Pettersin, city physician, covering a period of six years, the mean rain-fall is 36.90 for the year; for the year 1873 the rain-fall of the three winter months amounted to only 1.48 inches; Blodgett places the mean at five inches for the same period; according to the observations of Dr. Pettersin, the mean annual temperature for six years was 68.85, for the winter 52.94.

The tables of mortality, on the very ingeniously constructed

chart accompanying the weather tables, show a mortality for the year 1873 of 323, in a population of about 16,000. From the above number of deaths, the Doctor deducts 56 as (stranger-invalids). On my addressing a letter to him asking what these invalids were suffering from, and from whence they had come, also his opinion of San Antonio as a health resort, I received the following letter:

“OFFICE OF CITY PHYSICIAN,

“SAN ANTONIO, Tex., Sept. 6, 1874.

“*Dr. W. D. Bizzell, Mobile, Ala.:*

“DEAR SIR—Yours of the 31st ultimo received. In regard to the 56 strangers (invalids) mentioned on my chart, 24 died from phthisis pulmonalis; 16 of them were from Mexico; most of them had only been in the city from a few days to a few months. The remaining eight were from other States in the Union, who came to San Antonio when in the last stages of consumption. The remaining 32 strangers were mostly old broken-down Mexicans of the poorer class. In regard to the question of health resort for consumptives, San Antonio is not a very good place, being situated too low, and very dusty (limestone); but a few miles above San Antonio, say from 15 to 30 miles, in the mountains (Leon Springs or Borene), being an excellent place for consumptives. I do not think there is any spot in the Union excelling it very much. Thousands of consumptives go there from every part of the Union, Borene being over 1100 feet above the Gulf, with good drinking water and a very pure air.

“The rain-fall is generally less during the winter months, say January and February in particular.

“Yours truly,

“DR. FRED. PETTERSIN.”

We believe that for certain cases the high and dry air of western Texas would prove very beneficial, especially the region mentioned by Dr. Pettersin; in cases of uncured pneumonia, especially if they be complicated with bad digestion, as they too frequently are, the water flowing from these limestone hills might exert a favorable influence, and are not to be overlooked. The gravest and most serious objection to this part of the Union as a health resort is the rapid and great changes of

temperature that are liable to occur at almost any time. The northerly or cold blows from the north that we have seen were common to most of the Southern States for the winter, are met with here, having an intensity and fierceness unknown elsewhere in the South. And the invalid must always go prepared to increase the amount of his clothing and in other ways protect himself from the intense cold sometimes developed. It cannot be denied that this characteristic in the climate of Texas is a very serious disadvantage, and one not to be lightly overlooked in determining where we shall send our consumptives.

Thus far in the discussion of this subject—Health Resorts—we have only considered those located in the South, and more especially suited as resorts during the winter season for northern invalids. We come now to consider such localities which, while not altogether unsuited as resorts for consumptives originating at the North, are more especially suited for the consumptions originating at the South, and for the summer season.

Among these latter, one that has attracted considerable attention is Minnesota, in the great Northwest, of which region St. Paul is nearly the centre.

Minnesota is placed, as we at once perceive, far above the 38th parallel, regions to the north of which we have already seen possess the greater mortality from phthisis in this country. Situated, as it were, almost in the very centre of the continent of North America, and in the same latitude as the State of Maine, yet with a death-rate from phthisis much smaller than the latter, the proportion being as one in 7.7 to 3.9 from all causes, yet still being nearly twice that of Alabama, 14.2. The climate of Minnesota makes up in dryness what it lacks in warmth, the cool, dry summers being peculiarly grateful to many cases of consumption originating in the South. The annual rain-fall in the neighborhood of St. Paul is only about 28 inches, with a mean temperature of 42 degrees in the same region, and with an elevation above the sea level of 1500 to 2000 feet outside of the valley of the Mississippi, which takes its origin in this State and flows directly through it.

As a health resort, Minnesota began to attract attention just before the commencement of the late war, when the tide of immigration had set in this direction. During the war, when

Florida no longer lay open to the Northern invalid, the physicians began to send some of such patients to Minnesota, but it was not until two years after the close of the war that it began to attract attention at the South, and by the year 1870 Minnesota had a reputation as a health resort greater, and attracted more attention than at the present time. The reason for this partial revolution in sentiment and opinion, on the part of the profession and the public, is not due to any climatological changes that have taken place, nor indeed, as we believe, that the climate has shown itself unsuited to properly selected cases that have been sent here. We rather think it due, as we have intimated in regard to Florida, to the large number of improper and hopeless cases that have been sent here with the vain hope that they will improve. To send a patient here suffering from bronchial irritation, with dry cough and tendency to the tubercular development, would only aggravate the trouble and fix the disease more firmly upon him. It is also no doubt a great mistake to send those cases of uncured pneumonia to this region from the North, as such cases recover almost magically in the warm, mild air of Florida; while for the consumptive from the South, who only begins to lose ground at home with the advent of warm weather, Minnesota is a promising resort, especially in such cases where the expectoration is considerable and night sweats distressing. The claims of Minnesota as a health resort having been called in question, the "State Board of Health" issued circulars containing a series of tabulated questions calculated to bring out all the facts in the case. These circulars were sent out in 1874, directed to every medical man in the State. The report of the Board, if it has been published, we have not yet seen, though it must be very interesting.

Almost every physician in the South, if he has not sent patients of his own to Minnesota, has seen the benefits accruing to those of others that have gone there for the summer, and a permanent residence seems to be just what is needed in certain cases to stay indefinitely the inroads of the disease, as the record of numerous cases from this section will show.

However the claims of Minnesota may be decided by her State board of health and their recent researches, we have the opinion of the best of her physicians on this question recorded

in the volume of Transactions of the State Medical Association of Minnesota for 1870.

First, and bearing on the comparatively large mortality from phthisis in this State, Dr. Blood says: "Not two per cent. originated here." Dr. Galoway—"I think about one per cent. may be produced here." Dr. Mayo—"I cannot say in what proportion; very small."

As to the season of the year most suitable to resort thither, they are not so unanimous in opinion; all, however, are agreed that the change can be made with benefit from New England at any time, which is no doubt true in the main, though for invalids from this section (New England) we do not consider Minnesota as the best climate in winter, even for the minority of cases. From the South, the majority are agreed that the month of May or June are the best for invalids to make the change, an opinion we coincide in fully. Some, however, advise that the patient make the change even in mid-winter, so far South as New Orleans—bad advice we think.

Some of those in attendance at this meeting of the Association were persons who, on coming to Minnesota, were suffering from phthisis, and gave their testimony as to the effect produced by the climate upon their own persons, one of whom, Dr. Murphy, says: "I came here twenty years ago, and I think I may say that I am a living example, and a striking one, of the advantages to be derived from the climate of Minnesota in cases of pulmonary diseases. At the time of my coming here I was a very light weight; I, in fact, did not exceed 136 pounds; now my weight exceeds 226 pounds. At the time I came decided symptoms of pulmonary disease had declared itself in my case; but I found an immediate benefit in the climate of Minnesota, and at the present time I do not believe (so far as my lungs are concerned) there is a healthier man in the State. I have known persons to come here even in the advanced stages of the disease, and who made the most astonishingly rapid recovery. They came in despair, but on becoming better they returned to their homes, which they had no sooner done than the disease again developed itself."

Dr. Murphy says, that in many of these cases apparent or real cure would have followed a prolonged or permanent resi-

dence. We agree to the general truthfulness of the aphorism, that when a person finds that he is in a climate suited perfectly, or nearly so, to his individual case, he ought to locate there and stay the balance of his life-time.

Dr. Murphy further says: "I have known business men to come here apparently doomed, and become so healthy and strong as to present no evidence of the disease; and they went back to Memphis and other places, *but they never came back here,*"—intimating that they soon died.

There are, however, many persons who, by spending their summers in the high and dry region of Minnesota, if it prove suitable to their conditions, can, with almost apparent impunity, attend to their daily avocations and spend their winters in Mobile; of course always keeping in mind, and living within the bounds, of a restricted vitality. We think, however, in many cases it is little less than suicidal for a person, after he is in a fair way to improve, if not to shake off the grasp of the disease entirely, before the good work is completed to again return to his old haunts and habits. If he can not remain permanently, he ought to stay at least twelve months after all signs of his old enemy have disappeared. There are localities that we think would be preferable to Minnesota even as a permanent residence for consumptives, originating as far South as Mobile, as we shall see further on.

In a report on the "Climatology and Diseases of Minnesota," by a committee appointed at the previous meeting of the State Medical Association, under the head of Phthisis, they say: "In almost every instance the profession agree in regard to the beneficial effect of climate and residence here in the incipient stage of this disease. In the second stage, or softening and expectoration, there is more difference of opinion; a few advise coming here at any stage, others at an early period in the development of the disease, while a large number do not recommend a residence here, unless there are some peculiarities about the case which would favor such a course.

"A few qualify the above statement, in that the patients should be marked by debility, anæmia, deranged digestion, and faulty assimilation from other cause; and also an absence of congestive tendency in the system; the arguments being, that our

climate benefits phthisis only as it favors the process of nutrition.

"The per cent. of those benefitted in the second stage by residence is estimated by some as high as 80 per cent.; by others much lower; while in other experiences it has been very small, with the disease hastened in those not benefitted."

The committee complain of the meagerness of the details furnished by the various physicians of the State, but from a number of physicians, representing in the aggregate 30,000 of the citizens of Minnesota within the purview of their observation, they report as dying from phthisis in Minnesota, without predisposition, seven or eight; with predisposition, only 27. The period of observation on the part of the physicians responding to the call of the committee, ranges from 13 to 20 years, and shows a most remarkable immunity to the development of this disease in Minnesota.

In consequence of the cool, dry atmosphere of Minnesota for the summer season, it has proven, in properly selected cases, a most admirable resort for those cases of consumption and bronchial catarrh originating in the South, accompanied by profuse expectoration and rapid wasting of strength on the advent of the heated term; and though its reputation in this regard may be clouded for a season, by the unfavorable termination of improper or hopeless cases, we confidently believe that in the future it will be still recommended by the discriminating southern physician.

Colorado is another portion of the Union that is rapidly growing in favor as a health resort for consumptives and asthmatics—especially the latter. The Territory of Colorado is situated immediately at the foot and along the eastern slope of the Rocky Mountains, and is crossed by the 40th parallel of latitude, the major part of the State lying south of it, or at least that portion which has attained the greatest reputation as a health resort.

The mean annual temperature of Denver City, which is situated in this alleged health-giving region of the Territory, is 44 deg., according to Prof. Henry, and with a rain-fall, according to the same authority, of 12 inches per annum, at Denver, and 16 further up the mountain slope. The altitude above the sea

level at Denver City is five thousand two hundred feet. The characteristics, therefore, of this climate are great dryness, purity and elasticity of the atmosphere, with, of course, a diminished amount of oxygen in a given bulk of air, in consequence of the great altitude. The physiological effect on a person entering such an atmosphere, is to increase the number of respirations to the minute, and accelerate the pulse; an effect that in advanced cases of heart troubles—such as mitral insufficiency, or dilated, weak or fatty heart—might prove disastrous, or even fatal. The same might be said of those cases of phthisis where a very considerable portion of the lung-tissue had been destroyed, or functionally compromised by the ravages of the disease, and just enough lung-tissue was left, for the patient, by a slight acceleration of the rapidity of the respiratory function, to breathe in comfort at ordinary altitudes. Such patients, on coming into an atmosphere having the altitude of Denver, pant and gasp for breath, and feel as if they could not endure it for an hour. I have known several persons who were of the class mentioned, and who, after arrival, found it necessary to their comfort, and even existence, to seek as soon as possible a lower level. These same persons had gone from this State, to the moderately high region of Minnesota, without any inconvenience.

Dr. Gehrung, of Denver City, in a paper read before the Territorial Medical Society, October, 1873, gives a graphic description of the climate and its advantages, from which we quote. Among the characteristics pertaining to it, are, he says: "The *mild climate*, as compared with other parts of the United States on the same degree of latitude; the extreme temperature of the States being met with here only exceptionally. The summers in Colorado are generally mild and cool, especially the nights, which enable the invalid to obtain always the rest so much needed for the restoration of his health. Our winters cannot be surpassed for beauty and mildness by that of any country of the same parallel.

"The almost constant *dryness of the atmosphere*, dependent on the sparsity of the rains, the porous soil, and dry winds."

It should be not left unsaid, that there is almost complete absence of stagnant water here, which explains to a great degree

the exceeding dryness of the air. All this encourages outdoor exercise, both winter and summer. The dryness of the atmosphere encourages the action of the skin, and yet so rapid is the evaporation that the perspiration is quite imperceptible, thereby exposing the patient less to the danger of taking cold than in most climates. On account of the rarity of the atmosphere, in consequence of the *high altitude*, a larger bulk of air is needed to oxidize the blood. Either the chest must be forced to greater distention, or the breathing must be much accelerated.

Either of these processes necessarily causes an increased destruction of lung-tissue, &c., and the power of digestion, &c., being equal to the task, also accelerated repair. The *sun light* is seldom obscured by clouds and fogs, so that its accompanying warmth and invigorating power is always to be counted on—principles so necessary to healthy organic life.

“If other inducements were needed for outdoor exercise, we have the magnificent scenery of the mountains, to withdraw the mind from an undue consideration of self, and to fill it with healthy enjoyment, instead of brooding on disease, thereby leaving the nervous system undisturbed in its workings.

“All these advantages contribute to increased exercise, and therefore increased destruction of organic tissue; in which very destruction consists the invigorating properties of this country, for thereby repair becomes at once and always necessary, while the outdoor life and exercise in pure air stimulates the digestive apparatus to answer to the increased demand. If the latent functional force be there, we have accomplished our end; old tissues will be destroyed with greater speed, to be replaced by younger and more vigorous material; that which is bad, in short, replaced by that which is good—physiological products are substituted for pathological.

“But let it be remembered that the one *‘sine qua non’* by which all this is to be accomplished, is a sufficient degree of digestive force. With this, let the patient be sent to Colorado (if his disease is not too far advanced); *without* it, let him be advised to remain at home.” “Our Territory is like a wild steed. If you can tackle him, he will carry you out of your difficulties; if you can not, he will break your neck.” This point we consider well taken, for, as we before stated, we have known

persons with advanced phthisis go to Denver and be scarce able to spend a single day, and to whom a continuous stay would have been most disastrous.

These high regions in and around Denver City have acquired a very considerable reputation as a resort for asthmatics. Dr. W. F. McClelland, President of the Territorial Medical Society, in his annual address for 1873, speaks most flatteringly of its claims in this particular; and though it is a little irrelevant to the subject under discussion, in view of the distressing character of the malady, we will devote a small space here to this subject.

Dr. McClelland says: "I look upon Colorado as the house of refuge for certain invalids, particularly those suffering from asthma." Dr. W. R. Whitehead, of Denver, Colorado, in the *American Journal of Medical Science* for 1873, "On the Climatic Influences of Colorado,"—which, however, is mainly devoted to a history of the cases composing, and comments on, a Convention of Asthmatics that had assembled in Denver a short time previous. He gives a sketch of twelve of these asthmatic laymen, on whom he was enabled to make a physical examination, all of whom were from some one of the Eastern States, and in all, the disease had existed from six to twenty years. All were greatly benefitted, or entirely relieved, after a more or less prolonged stay in Denver. Of course the cases referred to were only a small proportion of those composing the convention referred to. Commenting on these cases, Dr. Whitehead says: "I should not omit to mention that asthmatics with valvular disease of the heart, or with advanced phthisis, will not be benefitted by a residence in the high altitudes of Colorado; indeed, the best place for patients with advanced phthisis, is home." Continuing, Dr. W. says: "It will be observed, from some of the cases that I have reported, that relief from the asthmatic paroxysms was obtained immediately on reaching a sufficient altitude in Colorado; as, for example, the altitude of Denver, which is five thousand two hundred feet above the sea-level. In other cases, a residence of several months, or a longer time, was required."

In one of these cases, No. 8 of the series, the patient only obtained entire relief at an elevation of eight thousand four

hundred and fifty feet, the altitude of Georgetown, where she resided. She would suffer from occasional attacks at Denver, but never during a two years' residence in the higher altitude of Georgetown.

There are many other towns in Colorado that the invalid could stop in with benefit besides Denver. Among the principal of which is Colorado Springs, on the Denver and Rio Grande Railroad, seventy-six miles south of Denver, with an altitude several hundred feet higher than the latter, being five thousand nine hundred and seventy-five feet above the level of the sea. There have lately been built here hotels and bath houses, to accommodate those who may seek to avail themselves of the pure mountain air and the valuable mineral waters that there abound. Pueblo, still further south, is a very desirable place in some respects. In grandeur and sublimity of scenery, the canons, parks, and mountains of Colorado are unsurpassed in this country, and we are satisfied that as a health resort, for consumption originating in the South, it would in many cases prove a most excellent place of summer resort.

Arizona Territory undoubtedly possesses strong claims for consideration as a health resort for consumptives. The Territory of Arizona is situated just to the west of New Mexico, between the latter and the southern portion of the State of California, which it very much resembles in its physical aspect of mountains, valleys and plains, abruptly associated and intermingled; and, as a consequence, possesses the same marked local variations in temperature and atmospheric pressure which distinguish Southern California. It is even more arid than the latter, having only a rain-fall of from five to six inches for the year. Almost every condition of atmospheric pressure can be found here, from that of the deep valleys, not far above tide-level, to lofty valleys and mountain peaks ten thousand feet high.

In the December number of the Virginia Medical Monthly, 1874, there is a very interesting paper, "Arizona as a Health Resort for Consumptives," by G. B. McPhail, M. D., Post Surgeon U. S. A. He says he believes the climate of Arizona, including Southern California and New Mexico; "the finest in the United States for pulmonary diseases." And he further

says: "Last November I arrived at Youma—formerly called Arizona City—thence proceeded to Tucson, where I spent a week; from thence proceeded to Camp Grant, a four company military post, where I spent the winter. I was out in the mountains with a large scouting party during most of the spring, and since May have been on duty here (Camp Apache), a three company military post, as Post Surgeon. In addition to the troops, I have been thrown with many native Mexicans and more than twenty-five hundred native Apache Indians, on the San Carlos and White Mountain Reservations; and during all this period I have not seen a case of consumption among the natives, and no case in the white population that had not been arrested, many of which were apparently cured.

"I have not seen a case of pneumonia or other serious disease of the respiratory organs. I have met soldiers and officers who were suffering from almost every form of lung disease on their arrival in the Territory; phthisis in its different forms—in several far advanced bronchitis, asthma, impaired function from old pneumonias, pleurisies, &c., and in every case marked improvement has followed after a short residence here. Many cases seem to be cured, others benefitted and held in abeyance." The mean annual rain-fall throughout most of the Territory of Arizona is from five to six inches. The temperature varies with the elevation above the sea-level. The mean winter temperature of Youma, only a few feet above tide-level, is about 55 degrees; rain-fall, five inches per annum. Tucson, the capital of the Territory, a town of some 3,500 inhabitants, according to Dr. McPhail, for eight months of the year affords a most excellent climate; has an elevation of two thousand feet above the sea; snow seldom falls on the plain, though the mountain tops are occasionally covered; it is colder in winter than Youma, and not so warm in summer; mean annual temperature 62 to 65 degrees F. Of Camp Grant, where he spent the winter, Surgeon McPhail says:

"Camp Grant is about one hundred miles north-east of Tucson, and located at an altitude of four thousand feet, along the south-east bank of the Graham mountains, which tower far above; while a beautiful plain extends for many miles in the distance, bounded by a parallel range, and forming a valley

over a hundred miles long by fifteen in width. As most of the storms come from the east, it is in a measure sheltered from their severity. The thermometer occasionally falls 22 degrees, and during the winter and early spring the mountain tops are covered with snow, but rarely an inch falls upon the valley. The temperature rarely exceeds 100 degrees F. in the summer, and the nights are cool."

Of Camp Apache he says:

"Camp Apache is located in the Sierra Blanco mountains, latitude 34 degrees, longitude 109 degrees 45 minutes, altitude five thousand six hundred feet, constructed on a mesa, in a beautiful valley, almost entirely surrounded by mountains. The White river, a silvery stream of pure water, courses through this valley, which is clothed with a luxuriant verdant growth, while the mountain sides are covered with live oak, cedar, pine and fir trees. The winters here are sometimes harsh, the thermometer sometimes registering as low as 6 degrees, with considerable rain and snow; yet when the days are clear the temperature is mild and bracing. But from May to December the climate is superb, the temperature rarely reaching 100 degrees at noon, and generally falling to 70 degrees at night, causing a blanket to be comfortable and refreshing sleep certain. This summer (1874) the snow did not disappear from the mountain tops till the middle of June, and the so-called rainy season commenced about the first of July and lasted until September first. During this period frequent showers, with vivid lightning, occur at night, leaving the day bright, with a delightful atmosphere."

We see, then, as Dr. McPhail remarks, that "any temperature desired may be obtained within a comparatively short distance, according to latitude and altitude."

The climate of Arizona, in common with the States occupying the slopes of the great Rocky Mountain chain, in this latitude, is a dry one, and in a great degree possesses an immunity from those sudden changes of temperature so injurious to the phthisical patient in the Eastern States; the cold of winter is less intense and the heat of summer more endurable, and by proper selection, after once reaching the Territory, within small distances we find localities suited for winter and summer resort;

for, as Surgeon McPhial says, "The numerous little valleys and secluded canons afford protection from the sudden storms of winter, while the more elevated positions afford a retreat from the summer heat and malarial poison,"—a patient residing during the winter say at Youma, and for the summer at Camp Apache.

Dr. Geo. S. Rose, Assistant Surgeon U. S. A., stationed at Fort Youma, says:

"In an extensive practice in this vicinity for two years, I have met with but three cases of the disease (consumption). Two of them I found amongst the enlisted men, and one amongst the native Mexican population. The two former are now on duty, nearly well, and the latter succumbed, owing, I am satisfied, to want of proper hygienic care and attention, and also to the disease being complicated with hereditary syphilis. I have not seen a single case among the native Indians in this vicinity, and with the exception of the one above alluded to, not a case among the native Mexican population."

He further says: "My own conviction is that the belt of country lying between the 32d deg. and 35th deg., and extending from the Pacific coast to the valley of the Rio Grande, is the best adapted of any portion of the continent for the treatment of tubercular phthisis, and that the completion of the projected Texas Pacific Railroad will make it THE resort of this class of invalids."

New Mexico, lying just to the east of Arizona, possesses much of the characteristics in the way of climate that distinguish the latter, being mild, dry and equable. The mean annual rain-fall in the valley of the Rio Grande is eight inches, gradually increasing as we approach the mountains on either hand, till, far up above the latter, there is a rain-fall of sixteen inches for the year, and in a portion of the southern part of the Territory the rain precipitation amounts to twenty-four inches per annum. As we remarked of the Territory of Arizona, the physical aspect of New Mexico is that of rapid transition, and great diversity of elevation, containing within its border deep valleys, gorges and canons, associated with mountains and elevated and more or less arid plains. Of course in such a region the local variations in temperature, &c., show great differences,

even in places very near each other. New Mexico has in some sort of vague way, for a long time, been spoken of as promising much to phthisical invalids, and in newspapers and among laymen it is not uncommon to hear it mentioned in this connection approvingly, but I have been able to find very little that was definite in regard to it. No doubt its inaccessibility and the comparatively few invalids who could undertake so toilsome a journey, has deterred medical men from recommending it before this. In my opinion, to a man who is willing to forego a great deal, spend years, if necessary, in the effort to restore his respiratory organs to a sound condition, there is no place that I know of so promising as New Mexico, especially the Rio Grande valley. It is high above, but not too high, the sea-level, possesses a dry, balmy and invigorating atmosphere, and the rich soil, under beneficent irrigation, teems with the finest fruit that rewards the toil of the husbandman. Finding so little on record as to this climate at the hands of medical men, I addressed several letters to different parts of the State, but received in reply only one letter, from Dr. O. H. Woodworth, which is so interesting and to the point, I shall insert it entire. La Mesilla, the town in which the doctor resides, is situated in the Rio Grande valley, about fifty miles above the old Mexican town of El Paso, so famed for its grapes, and is four thousand feet above the sea-level. As to the productions of La Mesilla and its claims as a health resort for consumptives, we shall leave to Dr. Woodworth in the letter referred to, and which follows:

“LA MESILLA, NEW MEXICO.

“September 24, 1874.

“*Dr. W. D. Bizzell:*

“Dear Sir—Yours of the 9th instant is received, and in reply I would state, that I have never known a case of tuberculous consumption to originate in this part of the country; and such a thing is unknown to the natives here. I honestly believe that any patient with incipient tuberculosis would be entirely cured, or the tubercular development arrested and rendered latent and inert, by a permanent residence in this section of New Mexico. I have known many consumptives to come here for the benefit of their health, and *all* were benefitted; some

temporarily, *some permanently*. Those who were benefitted temporarily only, were in the last stages of the disease when they came, and of course were beyond all climatic or medical aid. Still, their lives were prolonged much more than could have been possible in any section with which I am acquainted. I have known patients to come here with apparently well developed tubercles, undergoing induration—others with vomicae—and regain health, strength, and flesh.

“Our climate is very dry, mild, and equable; no dew falls; the rain-fall is only about eight inches yearly. The elevation of the Rio Grande valley at this place is about four thousand feet above the sea-level. Our winters are very mild and pleasant; of course, we have a few cold snaps occasionally but not disagreeably so. Snow seldom falls in the Rio Grande valley, which is bordered by mountains; and when it does, it melts as fast as it falls, never remaining on the ground more than an hour or so. Our summers are cool and pleasant; the sultry, suffocating ‘heated terms’ of the States are unknown. A person can sleep out of doors (owing to the absence of dew) the year round, except in rainy weather, of which we have comparatively very little. We have fine fruits, melons, &c., including the famed ‘El Paso Grapes,’ probably, in this climate, the finest in the world.

“The foregoing, I believe, Doctor, answers your questions as well as it is possible to do so in a short letter. You may possibly think the picture overdrawn, but I assure you that it is not. This Territory, in my opinion, is, as a health resort for consumptives, far superior to famed Italy, and its cloudless skies, but malarious marshes.

“Should you desire to know anything more concerning New Mexico, I will take pleasure in answering you. As to me, it is a ‘labor of love’ to speak or write of our health-giving climate.

“Respectfully yours,

“O. H. WOODWORTH, M. D.”

We have no doubt but that the valley of the Rio Grande surpasses, in attractiveness and health-giving qualities, that of the Colorado, in which is situated the town of Youma, of which we have already spoken; and the only reason why it has not been long ago thronged with consumptive invalids, is the want of

attention on the part of physicians to its claims, and its inaccessibility. The long, fatiguing, and even dangerous journey necessary to reach it, deterred physicians from recommending, and patients from attempting to avail themselves of the advantages that might attend a residence in this valley. But with the completion of the Southern Pacific Railroad, projected to pass through this Rio Grande valley, and which, in the growth and development of the country, will soon be a work of prime necessity, and is bound to be completed at a period not very far in the future, this will be one of the chief resorts recommended to the victims of tubercular consumption.

The southern portion of the State of California has, in the last few years, acquired very great repute as a health resort; and it is predicted by some that it will in the future be the great sanitarium of the continent in the treatment of pulmonary diseases. Thousands now resort thither, during the winter season, from the eastern States of the Union; and many to make it their permanent residence. Santa Barbara, San Bernardino, Los Angeles, San Diego, and San Jose, are the points to which most invalids resort.

Dr. Lewis Rogers,* of Louisville, Ky., has lately spent some time in California, and devoted considerable time and attention to the study of the climatic characteristics that distinguish this portion of the State. "San Diego," he says, "is distinguished for its warm and remarkably equable temperature, the diurnal variations being slight, and the changes due to the seasons so inconsiderable as to be harmless. Its proximity to the sea renders the air salt and somewhat humid, unless the wind blows from the inland, and in the winter season cold fogs are sometimes troublesome for a portion of the day." Many of the physicians of San Francisco, according to Dr. Rogers, prefer San Diego to any other place as a winter residence for a certain class of patients. But from what he could learn, it is deficient in variety and abundance of the best kinds of food.

Santa Barbara, according to the same authority, "enjoys a like equable temperature, somewhat colder than that of San Diego, with a salt and somewhat humid air, and occasional

*American Practitioner, May, 1874.

but less frequent and warmer fogs. The weather is sometimes too warm and relaxing for consumptive patients."

The same conditions of climate prevail at Los Angeles as the foregoing, save that it has somewhat less of the fogs and dampness incidental to places nearer the sea-coast.

San Bernardino is in all respects like that of San Diego and Santa Barbara, save that being very considerably more remote from the sea-shore, "its air is more dry, free from sea impregnation, and fogs do not so frequently occur."

"Stockton and Vesalia are inland towns, with a mild, dry and equable air, very agreeable to many invalids to whom the sea air is offensive." The mean annual temperature of Los Angeles and San Diego, according to Prof. Henry, is 60 degrees F.; that of San Bernardino is somewhat less, 56 degrees. The mean annual rain-fall at San Diego is only about 8 inches for the year, and that of Los Angeles and San Bernardino is about 12 inches. These places, then, would at first sight seem to be most peculiarly fitted for the sojourn of those afflicted with tubercles.

From the reputation these places have acquired in this connection in the States east of the Rocky Mountains, Rogers says he "was surprised to find the resident physicians at San Francisco not at all enthusiastic on the subject." On questioning them as to whether or not they ever sent any of their patients to Southern California, San Francisco being recognized as a bad locality for consumptives, the reply was, that "they did send some of their patients to Southern California for a short while in the winter season;" at other times they greatly preferred the resorts among the Sierra Nevada Mountains. But if we study the characteristics of this climate closely, we very readily see that they are right; for though, as we have seen, the annual rain-fall amounts to only twelve inches, every drop of which usually falls between the first of November and the first of March, and though the temperature is everything that could be desired, the mean for the winter being 53 degrees F., and for the summer 68 degrees, the amount of moisture suspended in the atmosphere *bears no proportion* to the amount of rain-fall. And though it is usual to speak of this part of California as possessing a dry atmosphere, on account of the long summers destitute of rain, in reality it is a damp climate—as

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the other good qualities pertaining to the climatology of the foregoing region.

In conclusion, we shall not attempt to direct physicians as to where they shall send their patients, or how they shall determine the locality suited to the particular case they may have under advisement; nor will we enter into any of the details as to the personal hygienic management of patients, which is of such great importance in this disease, preferring to leave both of these to the judgment of the intelligent physician, after he shall have carefully studied the characteristics of climate that pertain to the several health resorts in the United States, and the condition and needs of his patients. But in the name of common sense and humanity, and for the sake of science, do not send from friends and the comforts of home those unfortunates who have already passed the bounds of curability. If all such cases were kept at home, and all physicians would give the subject of climate the attention its importance deserves, the number of persons benefitted at our various health resorts would be proportionally far greater, and the number called to die among strangers, far from home and friends, would be much less.





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